

**EXAMPLE COMPLIANCE ASSURANCE MONITORING PLAN:
FABRIC FILTER FOR PM CONTROL – 2**

I. Background

A. Emissions Unit

Description:	Primary nonferrous smelting and refining
Identification:	17-DC-001, 17-DC-002
Facility:	Facility M Anytown, USA

B. Applicable Regulation, Emission Limit, and Pre-CAM Monitoring Requirements

Regulation:	Permit; OAR 340-025-0415, 340-021-0030
CAM Emission limits:	Particulate matter: 0.2 gr/dscf
Pre-CAM monitoring requirements:	None

C. Control Technology, Capture System, Bypass, PTE

Controls:	Reverse-air baghouses operated under negative pressure
Capture System:	Closed-duct system
Bypass:	Operation of the fan indicates that the baghouses are not being bypassed.
PTE before controls:	10,300 TPY (Based on 98% efficiency of the baghouse)
PTE after controls:	206 TPY

II. Monitoring Approach

The key elements of the monitoring approach are presented in the attached table. Normal process operations will not produce conditions that adversely affect the baghouse without affecting pressure drop or fan amperage; therefore, no process operational parameters will be monitored.

III. Response to Excursion

- A. Excursion of pressure drop or fan amperage ranges will trigger an inspection of the baghouse, and operations to slow down production as feasible. Maintenance personnel will inspect the baghouse within 4 hours of receiving notification and make needed repairs as soon as practicable. Operation will return to normal upon completed corrective action.
- B. QIP Threshold: If any reference method testing indicates emissions exceeding the particulate matter limit while pressure drop and fan amperage are within range, a QIP must be performed. (Note: Proposing a QIP threshold in the CAM submittal is not required.)

MONITORING APPROACH

	Indicator No. 1	Indicator No. 2	Indicator No. 1	Indicator No. 4
I. Indicator	Pressure drop	Fan amperage	Inspection/maintenance	Reference Method Testing
Measurement Approach	Pressure drop through the baghouse is measured continuously using a differential pressure gauge.	Fan amperage is measured continuously using an ammeter.	Daily inspection according to I/M checklist; maintenance performed as needed.	Emissions testing using Methods 1-4 and 5.
II. Indicator Range	Pressure drop between 5 and 15 in. H ₂ O.	Fan amperage above 100. Fan operation also indicates control device is not being bypassed.	NA	Particulate matter ≤0.2 gr/dscf
III. Performance Criteria	Pressure drop across the baghouse is measured at the baghouse inlet and exhaust. The minimum accuracy of the device is ±0.5 in. H ₂ O.	Fan amperage is measured at the fan by an ammeter. The minimum accuracy is ±5A.	Inspections are performed at the baghouse.	Test sampling done at the exhaust of the baghouse.
A. Data Representativeness ^a	NA	NA	NA	NA
B. Verification of Operational Status	Pressure gauge calibrated quarterly. Pressure taps checked daily for plugging.	Fans checked during daily inspection. Ammeter zeroed when unit not operating.	Qualified personnel perform inspection.	Use reference method protocols.
C. QA/QC Practices and Criteria	Pressure drop is measured continuously.	Fan amps are monitored continuously.	Daily inspection.	Once every 5 years.
D. Monitoring Frequency	A strip chart records the pressure drop continuously.	A strip chart records the fan amps continuously.	Records are maintained to document daily inspections and any required maintenance.	As required by Methods 1-4 and 5.
Data Collection Procedures	None	None	NA	NA
Averaging period	None	None	NA	NA

^aValues listed for accuracy specifications are specific to this example and are not intended to provide the criteria for this type of measurement device in general.

JUSTIFICATION

I. Background

The monitoring approach outlined here applies to melt furnace baghouses Nos. 1 and 2. These baghouses control dust from four 23 MW electric melt furnaces (Nos. 1 through 4) and two rotary kilns. They are ICA reverse-air baghouses with 12 compartments apiece; each compartment contains 128 bags. Air flow through each baghouse is maintained by two induced-draft variable speed fans downstream of each baghouse. The capacity of each baghouse is 275,000 acfm.

II. Rationale for Selection of Performance Indicators

The pressure drop through the baghouse is monitored continuously. An increase in pressure drop can indicate that the cleaning cycle is not frequent enough, cleaning equipment is damaged, or the bags are becoming blinded. Decreases in pressure drop may indicate significant holes and tears or missing bags.

Good operation of the fan is essential for maintaining the required air flow through the baghouse. The fan amps setting is selected to be high enough to draw the air required to collect the dust from the four melting furnaces and two rotary kilns. Excess gas velocity can cause seepage of dust particles through the dust cake and fabric. Fan amperage is an indicator of proper fan operation and adequate air flow through the baghouse (the exhaust gas is not bypassing the baghouse).

Implementation of a baghouse inspection and maintenance (I/M) program provides assurance that the baghouse is in good repair and operating properly. Once per day, proper operation of the compressor is verified to ensure that the bags are being cleaned. Proper operation of the cleaning cycle facilitates gas flow through the baghouse and the removal of particulate, and also helps prevent blinding of the filter bags. Operation at low pressures can result in inadequate cleaning, especially near the bottoms of the bags. Other items on the daily I/M checklist include the dust pump, induced-draft fans, reverse air fan, dust screws, rotary feeders, bins, cleaning cycle operation, leak check, and compartment inspection for bad bags.

Reference method testing for particulate will confirm performance of the baghouses and that operation within the indicator ranges continues to assure compliance with the particulate limit.

III. Rationale for Selection of Indicator Ranges

The indicator range for baghouse pressure drop is a pressure drop between 5 and 15 in. H₂O. This range was selected based on historical data obtained during normal operation. The pressure drop is typically around 10 to 11 in. H₂O. A review of data collected during April and May of 1997 show a range of about 9 to 14 in. H₂O.

The indicator range selected for the fan amperage is an amperage greater than 100. This range was set based on the level maintained during normal operation. The fan is operated at a high enough setting to draw the required air for dust collection from the four furnaces and two rotary kilns. It typically operates in the 100 to 157 amp range, with an average of 125 amps.

When a problem with the baghouse is detected during an inspection, the problem is recorded on the inspection log and corrective action is initiated immediately.

The most recent performance test using compliance test methods (RM 5) was conducted on July 8-9, 1997. During this test, the average measured PM emissions were 0.080 gr/dscf for baghouse No. 1 and 0.053 gr/dscf for baghouse No. 2 (both were below the compliance limit of 0.2 gr/dscf). Pressure drop and fan amperage were within the CAM indicator ranges for both baghouses during this test. The complete test results are documented in the test report. Prior to the performance test, an inspection of the baghouse was performed to ensure that it was in good working order, with no leaks or broken bags.

